

REMARKS

The above amendments and following remarks are responsive to the points raised in the June 21, 2005 final Office Action. Upon entry of this Amendment and Request for Reconsideration, Claims 1 and 4 will have been amended, Claims 2 and 3 will have been canceled, and Claims 1, 4, and 5 will be pending. No new matter has been introduced. No new issues have been raised that require further consideration or search. Entry and reconsideration are respectfully requested.

Response to the Rejection under 35 U.S.C. § 103(a)

Claims 1-4 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 6,400,492 to Morita et al. (Morita) in view of US Patent 6,897,996 to Ikeda et al. (Ikeda). Claim 5 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Morita in view of US Patent 6,897,996 to Ikeda (Ikeda), as applied to Claim 1, and in further view of US Patent 6,621,541 to Choi. Applicant respectfully traverse these rejections.

The Examiner acknowledges that Morita does not teach or suggest each feature of the subject matter recited in independent Claim 1. More specifically, the Examiner urges that Figure 1A of Morita “is interpreted as disclosing an electrophoretic display comprising” the various recited features of Claim 1, and states that:

“Morita is interpreted as disclosing all the claimed limitations except for an insulation layer disposed between the first electrode and the second electrode.”

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From here, the Examiner urges that:

[w]ithin the same field of endeavor, Ikeda (figure 1) is interpreted as disclosing this teaching of an insulation layer 8 between the first electrode 6 and the second electrode 7”, and

concluding there from that:

“it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an insulation layer between the two electrodes, as taught by Ikeda, for the purpose clearly defining the electrode regions.”

Contrary to the Examiner’s position, Applicant respectfully submits that the subject matter recited in independent Claim 1 is neither taught, suggested, or otherwise rendered obvious over the primary and secondary teachings of Morita and Ikeda, either alone or in combination. Ikeda advances no motivation that would lead one of ordinary skill in the art, at the time the invention was made, to modify Morita to include the insulating layer suggested by the Examiner.

The electrophoretic display example of Figure 1A of Morita, is discussed in Column 18, Lines 7-14, as a:

“display media having a pair of substrates 1. At least one of the pair of substrates 1 has an electrode 50 on one side thereof. In addition, at least one of the pair of substrates 1 is transparent. The pair of substrates 1 is configured so as to face each other with one or more spacers 3 therebetween. Numeral 4 denotes a display cell (i.e., recording layer) including the electrophoretic display liquid of the present invention.”

Other than “for the purpose of clearly defining the electrode regions”, the Examiner provides no additional insight or line of reasoning as to why one of ordinary skill in the art, at the time the invention was made, would be motivated by Ikeda to modify the electrophoretic display of Morita to include an insulating layer between the electrodes 50.

Unless the Examiner is attempting to suggest that the electrophoretic display disclosed by Morita is inoperative as a result of, for example, non-clearly defined electrodes 50, the Examiner's position lacks foundation. The Examiner's reliance upon Ikeda's teaching of an insulating layer 8 as a secondary teaching to support the conclusion of obviousness also lacks needed foundation.

Ikeda, in Column 5, Lines 19-21, states that:

“[t]he first electrode may have an insulating layer 8 formed on the surface thereof.”

Ikeda teaches, by virtue of the word “may”, that the insulating layer 8 is, at best, an optional feature thereof, wherein the regions of the first and second electrodes would be clearly defined with or without the inclusion of the insulating layer 8. The insulating layer 8 being optional, is a common theme throughout the Ikeda disclosure. Applicant respectfully urges that one of ordinary skill in the art, at the time the invention was made, would not have been motivated by Ikeda's optional insulating layer 8 to modify the electrophoretic display of Morita, as suggested by the Examiner.

Notwithstanding the above discussion, the present application is directed to an electrophoretic display characterized in that a microcapsule is disposed on a second electrode having a predetermined size and shape and arranged regularly. When an electric field (voltage) is applied between first and second electrodes, two species of electrophoretic particles move along the electric field in mutually opposite directions and one of the two species of electrophoretic particles gathered on the second electrode occupy a larger area to assume a color thereof when viewed from above the substrate, thus creating a contrast to effect display.

Morita discloses an electrophoretic display device in which hollow particles 102 and pigment particles 103 are filled in one cell and are moved by an electric field. A display principle is described with reference to Figures 11A-11C. The electrophoretic speed of the pigment particles 103 is faster than that of the hollow particles 102, so that the faster pigment particles 103 are moved on upper or lower electrodes surface when an electric field (voltage) is applied between the upper and lower electrodes as shown in Figures 11B and 11C. As a result, when the display device is viewed from above the upper electrode, the color of the hollow particles 102 (Figure 11B) or the color of the pigment particles 103 (Figure 11C) is displayed. These two species of particles (hollow particles 102 and pigment particles 103), however, do not move along the electric field in mutually opposite directions since only the pigment particles 103 move between upper and lower electrodes. In other words, the hollow particles are substantially held in an original state (see, Figures 11B and 11C). In the present invention, the two species of electrophoretic particles move along the electric field in mutually opposite directions (see, e.g., Figures 2(A') and 2(B')), thus providing a large contrast. As such, the subject matter recited in independent Claim 1, as well as dependent Claims 2-5, is distinguished over the applied primary and secondary references of Morita and Ikeda, either alone or in combination.

Notwithstanding the dependence of Claim 5 on Claim 1, the Examiner also acknowledges that the primary and secondary teachings of Morita and Ikeda do not include the color filter as recited therein and attempts to rely on the tertiary teaching of Choi to remedy the further shortcomings of Morita and Ikeda. The tertiary reference of

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Choi, however, advances no teaching or suggestion that would motivate one of ordinary skill in the art, at the time the invention was made, to further modify Morita in view of Ikeda to arrive at the electrophoretic display as recited in Claim 5. As such, the subject matter recited in Claim 5 is distinguished over the primary, secondary, and tertiary teachings of Morita, Ikeda, and Choi, either alone or in combination.

Accordingly, the rejections under 35 U.S.C. § 103(a) should be withdrawn.

CONCLUSION

Applicant respectfully submits that Claims 1, 4, and 5 are in condition for allowance and a notice to that effect is earnestly solicited.

AUTHORIZATIONS

The Commissioner is hereby authorized to charge any additional fees which may be required for the timely consideration of this amendment, or credit any overpayment to Deposit Account No. 13-4500, Order No. 1232-5270.

Respectfully submitted,
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